Spatial Dimensions of Stated Preferences

WELCOME AND INTRODUCTION

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Spatial Dimensions of Economic Analysis

- Welcome to the preconference workshop on spatial dimensions of stated preference analysis!
- From a broad perspective, why are we here?
  - Most issues studied by environmental and resource economists involve spatial dimensions.
  - The effect on policy evaluation can outweigh that of statistical and other issues given greater attention in the literature (Bateman et al. 2006, *Ecological Economics*).
  - There have been many advances in economists' treatment of spatial issues over recent decades.
  - But as a discipline, we still generally underappreciate the relevance and complexity of spatial dimensions.
  - "[Economists'] treatment of space, in any manner, has been largely superficial" (Bockstael 1996, *AJAE*).
  - This is (arguably) still true of much stated preference analysis.

Why Do Spatial Patterns Emerge?

- Willingness to pay (WTP) or Willingness to Accept (WTA) for policy effects is rarely distributed evenly over space.
- Spatial heterogeneity may occur because of patterns relevant to supply and/or demand
  - Relationships between household locations and spatial variations in the "supply" of non-market outcomes (initial endowments or changes),
  - Spatial heterogeneity in substitutes, complements or other relevant factors,
  - Spatial heterogeneity in underlying preferences (demand), due to endogenous or exogenous factors.
- Patterns may be discrete, continuous or (often) both, and may be due to both observed and unobserved factors.
- Sometimes "unobserved" causes of heterogeneity are due to omitted "observable" causes, but not always (theory has something to say here)…

What do we Know?

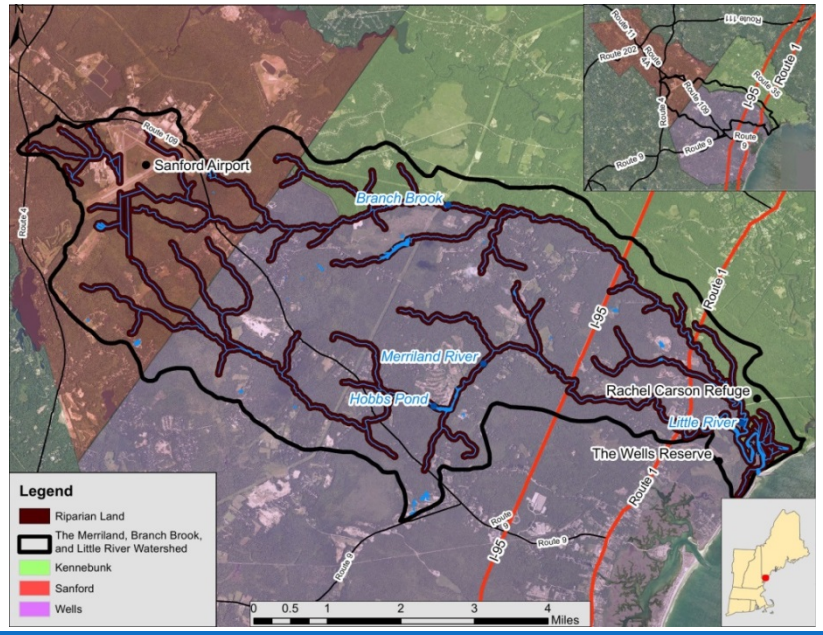
- Theory provides guidance on some but not all spatial dimensions, and patterns found in the literature often match theoretical intuition.
- Empirical evidence suggests that:
  - Welfare estimates vary over space in systematic ways—some but not all of which can be explained by theory.
  - Survey responses may be influenced by the same patterns (Johnston and Abdulrahman 2017).
  - Distance matters, but standard approaches such as distance-decay analyses sometimes misspecify the true spatial determinants of value (Holland and Johnston 2017).
  - Spatial welfare variations are complex and multi-faceted.
- Lack of attention to spatial patterns may lead to biased *individual* and *aggregate* welfare estimates (it's not merely an aggregation issue).
- Most stated preference analyses provide little information on spatial dimensions, and surveys sometimes provide minimal information on spatial aspects of goods to be valued.

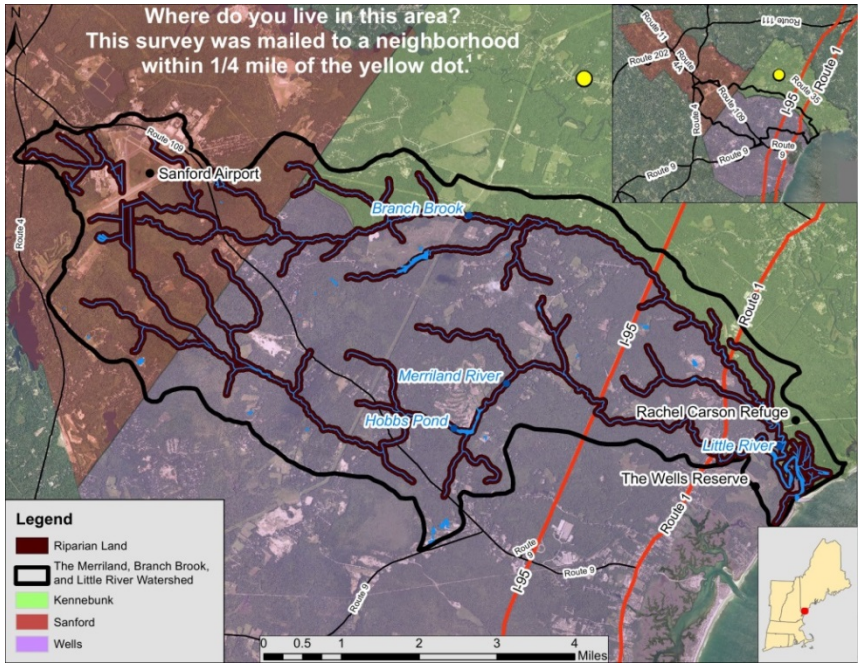
Why Is This Relevant for Policy Analysis?

- Spatial dimensions are important both for primary study valuation and benefit transfer.
- Benefit aggregation requires information on the spatial extent and distribution of values (Bateman et al. 2006), including the extent of the market (Loomis 1996).
- It also requires information on the distribution of values *within* the relevant market, particularly if
  - Policy effects are spatially heterogeneous
  - Survey responses are not spatially representative
  - Value estimates are desired for sub-regions
- Addressing these concerns requires attention to spatial dimensions at all stages of stated preference research, from survey design to analysis.

Example: Survey Design

- What spatial information do we present? How do we present it? How is it understood and used? How can theory inform these issues?
- What information is relevant to welfare elicitation and why?
- Can respondents self-locate?

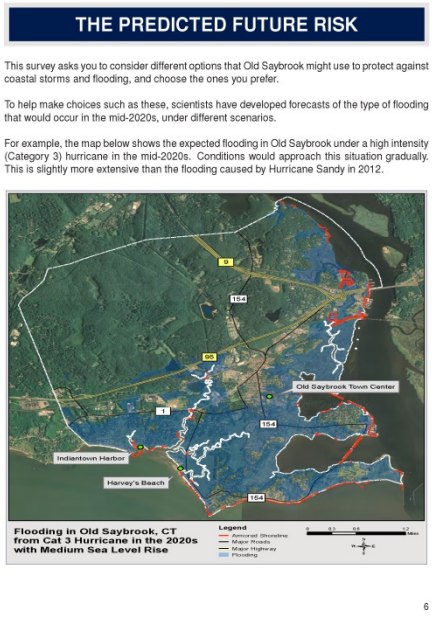


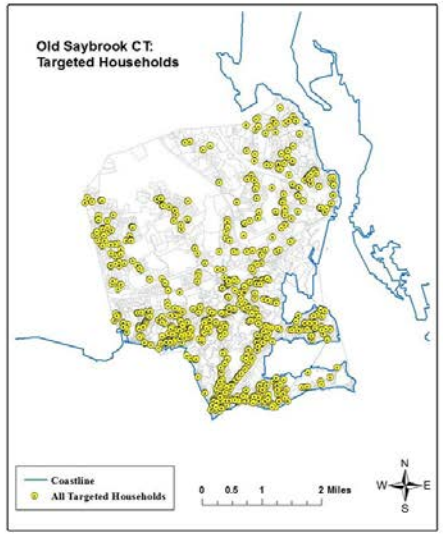


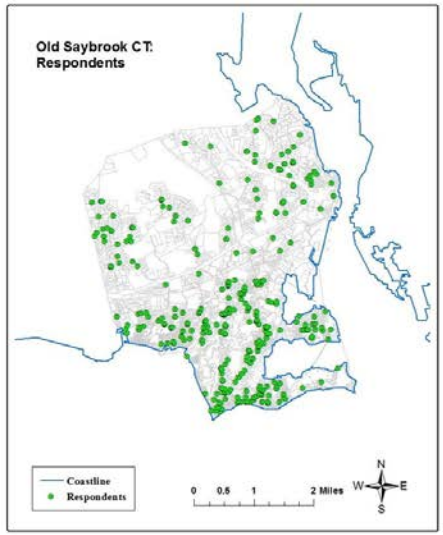
Johnston et al. (2016)

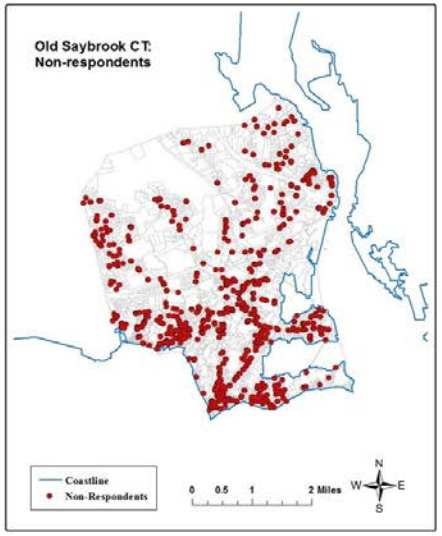
Example: Spatial Non-Response

- Are survey responses spatially representative? What does this imply for welfare estimation?
- How can this be corrected?





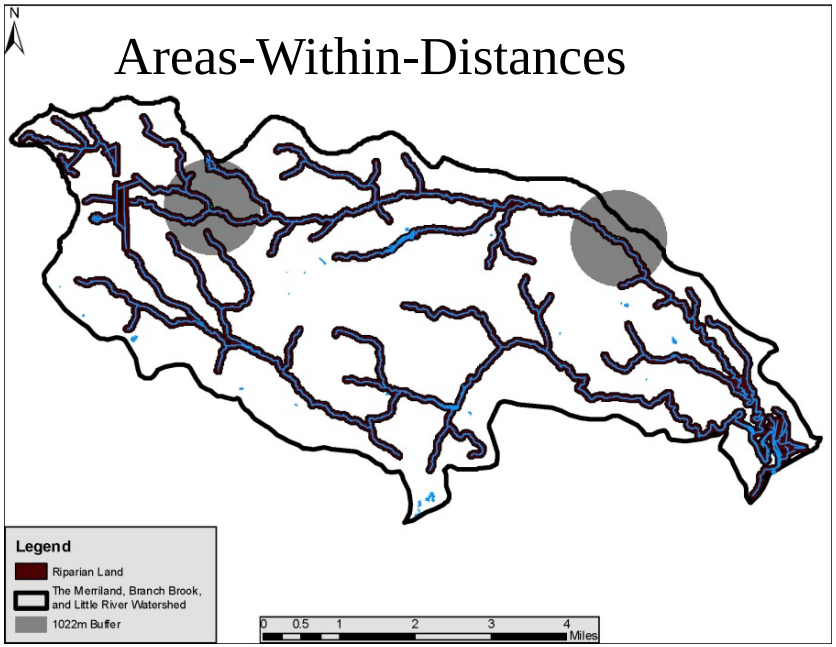




Johnston and Abdulrahman (2017)

Example: Spatial Analysis

- How does welfare vary over space and why?
- How can these variations be modeled and accommodated within policy analysis? To what extent can economic theory inform approaches and findings?



Holland and Johnston (2017)

Workshop Goals

- Explore challenges and opportunities related to spatial aspects of stated preference design and modelling.
- Discuss the state of the literature and needed advances in the analysis of spatial dimensions.
  - Evaluate conditions under which different types of approaches are or should be relevant (or not).
  - Reconcile divergent approaches across the literature in terms of theory and relevance for welfare estimation.
  - Compare competing empirical approaches in terms of empirical performance and ability to identify significant patterns.
  - Combine insights and methods into more holistic, valid and reliable treatments of spatial effects.
  - Identify outstanding questions and research frontiers.
- The Goal: To promote defensible, systematic, valid and reliable estimation of spatial dimensions within stated preference studies.
- Discuss “next steps” to get there…

Workshop Agenda

9:00	Welcome and Introduction: The Relevance of Space for Stated Preference Design, Value Elicitation and Model Estimation (*Robert Johnston*)
9:15	When and Why Go Spatial in Stated Preference Analysis? An Overview and Outlook (30 minutes presentation + 15 minutes discussion) *Robert Johnston (Clark University)* *Klaus Glenk (SRUC)* *Jürgen Meyerhoff (Technische Universität Berlin)* *Julian Sagebiel (Institute for Ecological Economy Research, Berlin)*
10:00	Presentations on current topics concerning the spatial dimension of stated preferences (15 minutes presentation + 5 minutes discussion). Moderation: *Julian Sagebiel.*
10:00	Geographically Weighted Mixed Logit, Geographically Weighted Latent Class Logit or One-Step Bayesian Estimation? *Mikolaj Czajkowski and Wiktor Budziński (University of Warsaw)*
10:20	The Use of Semi-parametric Models to Account for Biases from Omitted Spatial Covariates. *Brett Day (University of Exeter)*
10:40	Coffee Break

Workshop Agenda

11:00	Presentations continued (15 minutes presentation + 5 minutes discussion). Moderation: *Klaus Glenk.*
11:00	A new approach to capturing the spatial dimensions of value within choice experiments. *Tomas Badura (University of East Anglia)*
11:20	Distance decay and spatial preference heterogeneity: Combining stated and revealed preference data. *Jens Abildtrup (French National Institute for Agricultural Research)*
11:40	Does the functional form of distance decay depend on the different ecological endpoints that enter respondents' (heterogeneous) utility functions? *Søren Bøye Olsen (University of Copenhagen)*
12:00	Spatial preference heterogeneity in discrete choice site selection models. *Roy Brouwer (University of Waterloo)*
12:30	Lunch (will be provided)**

Workshop Agenda

13:30 Panel Discussion: Questions and Frontiers in Spatial Dimensions of Stated Preferences - What are the questions that we need to answer, and what are the important research frontiers? (Moderation: *Robert Johnston*)

Panelists:

Roger H. van Haefen (North Carolina State University)

Ståle Navrud (Norwegian University of Life Sciences)

Toke Emil Panduro (University of Copenhagen)

Jette Bredahl Jacobsen (University of Copenhagen)

Eija Pouta (Natural Resources Institute Finland)

14:45 Coffee Break

15:00 Group Discussion: Coordinating Approaches across the Literature and Steps towards Best Practice (Moderation: *Jürgen Meyerhoff*)

15:50 Next Steps and Announcements: *Jürgen Meyerhoff*

16:00 Workshop concludes

Final Notes and Reminders

- This workshop is the result of a coordinated effort over the past 12 months, building on a prior session at EAERE 2016.
- Organizers
  - Klaus Glenk, SRUC
  - Robert Johnston, Clark University
  - Jürgen Meyerhoff, Technical University Berlin
  - Julian Sagebiel, Institute for Ecological Economy Research
- In order to cover expenses for coffee breaks and lunch, we ask each participant to pay 15 Euros (please pay Julian).
- Thanks to everyone for participating and for your input!